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Investigating The Extent of Information Technology Usage In Malaysian Batik Industry

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Abstract

In this new information technology era, business enterprises in Malaysia should capitalize on the use of information technology (IT) to gain competitive advantage and bring their businesses to the global forefront. This paper discusses the extent of IT usage in the Malaysian Batik Industry. A survey study involving eleven batik companies in the Klang Valley was carried out. Information was also gathered via interviews with four related organization. Survey results indicated that communication via telephone is still the major mode of communication with suppliers, producers and customers Payment by cheque is still the most favored mode of payment and very few batik companies provide online payment facilities. Only four batik companies have set up their own websites. The services they wish to add to their websites are shopping cart, online payment and immediate credit card validation services. The main benefits they gain from their websites are faster and more efficient communication with customers while the two main problems they face are funding and lack of expertise in their company to maintain the website. Results of this study also show that improved sales, profitability, competitive position and recognition of market brand are significantly correlated with the batik company commitment to using IT in their business.

Keywords: Information and communication technology, batik industry, community net portal.

1. Introduction

Batik represents a significant part of the cultural heritage of Malaysia. It is a generic term of a popular handicraft which refers to the process of dyeing fabric by making use of a resist technique covering areas of cloth with a dye-resistant substance (such as wax) to prevent the absorption of colours (The Batik Guild, 1999). In Malaysia today, most of the batik producers are situated in the states of Kelantan and Terengganu along the east coast of Peninsular Malaysia. The Klang Valley region in the west coast of the peninsular also has a significant number of batik producers and dealers.

The local batik attire and handicraft is quite well known to visitors of Malaysia. In fact, many shops and boutiques within hotels and resorts in Malaysia generally market garments and handicrafts made from both batik tulis or tjanting (hand drawn batik) and batik cap (block print batik). In the Klang Valley region, a number of producers focus predominantly on the tourist market, whereas others will focus on both the tourist and local markets (Batik Design, 1993).

Although considered as a cultural heritage of Malaysia, the amount of development in this industry with respect to the use of information and communication technology (ICT) is not significant. ICT development generally comes in terms of basic office automation, such as personal computer systems and standard office application software like word processing, and electronic document interchange (EDI) technology. In the area of electronic business where telecommunications and networking are fundamentally important, the use of electronic mail and access to websites are deemed the simplest activities in the area of electronic business (Dilworth and Kochhar, 2004). However, such ICT investments, if any, are found to be sadly lacking in this industry.

This paper is organized as follows: Section 2 explains the problem statement and the aim of the study. The research methodology and results are discussed in Section 3 and a conclusion is given in Section 4.

2. Problem Statement

The batik industry although not exactly flourishing, was enjoying some relatively good trading in the period between mid-1980s to early 90s. However, by the mid-90s, the industry hit a slump and came to a standstill in the aftermath of the 1997-98 financial crisis (Shanmugam, 2004).

What led to the standstill? According to Zakiah (2003), the batik textile industry depends on low labour costs and a fixed market price. However, the last decade has seen a lack of skilled labour and this has significantly produced a negative effect on the industry. Also, due to the economic downturn faced by Malaysia in the late 1990s, the costs of raw materials for batik-making have increased tremendously. This increase in price has indirectly caused the cost of production to rise. Batik producers however were unable to increase the price of batik due to the unwillingness of batik dealers and customers to pay higher price. Thus, many cottage industries that produce batik were forced to close down.

Other problems faced by the local batik dealers and producers are ineffective procurement of raw materials to meet production needs and market demands, weak marketing and promotional strategies to sell their products and heavy reliance on middlemen for procurement of raw materials and selling of products. By remaining small-scale and traditional in operation, a majority of batik dealers and producers lose out in terms of sales volume, design and price. In this era of digital economy,

deployment of ICT is deemed necessary to overcome the problems and to boost the batik industry in Malaysia. No studies have been conducted on the usage of IT in Malaysian batik industry. Hence, this study seeks to investigate the extent of IT usage and results of this study can help in the determining the information requirements for the design of a Malaysian batik community net portal.

3. Methodology & Results

The study involved a survey on batik companies in the Klang Valley. Interviews were also carried out with four related organizations: (1) Malaysian Handicraft Development Corporation (MHDC), (2) Syarikat Karyaneka Sdn Bhd, (3) Batek Malaysia Berhad (BMB), and (4) Batik Guild Sdn Bhd (BG) to determine the needs and roles of each organization. There are about 19 batik companies in the Klang Valley excluding MHDC, BMB and BG. Phone calls were made to these companies to request for interviews. A few companies declined to participate in this study. At the end of four months, a total of 14 batik companies (including MHDC, BMB and BG) gave their co-operation and participated in the study.

The research instrument used to collect the required information was a constructed questionnaire with eight sections as follows:

| | |
|------------|--|
| Section A: | Respondent's Profile |
| Section B: | Background of Business (For Dealers and Producers) |
| Section C: | Background of Business (For Dealers) |
| Section D: | Background of Business (Producers) |
| Section E: | Website Information |
| Section F: | For Company without Website |
| Section G: | Relationship with Relevant Organizations |
| Section H: | IT in Batik Craft Industry |

The questionnaires were answered by the management staff namely directors and managers of the companies involved. Section A covers the profile of the respondents (gender and job description) and some background information about the batik company such as the year the company was established, type of business, total number of branches, total number of employees and number of year in business. Sections B, C and D involve information on background of batik business for each different type of business, i.e., dealers and producers, dealers only, and producers only, respectively. Section E involves website information (such as website services, maintenance of website, problems in managing website, etc.) from batik companies with websites while those companies without websites answer Section F. Section G covers information on the relationship of batik companies with relevant organizations such as MHDC, BMB and BG. Section H seeks information on the use of IT in the batik industry.

There are 7 (64%) batik companies that are both dealers and producers while 4 (36%) companies are dealers only. Most of the batik companies were established between the years of 1991 to 2000. The four companies that have been in business between 21 to 30 years are Batek Malaysia Berhad (1974), Pelangi Batek (1975), Noor Arfa Batek Sdn Bhd (1980) and Syarikat Pemasaran Karyaneka Sdn Bhd (1981). 46% of the companies surveyed do not have any branches. Most of the batik companies have a small number of employees (10 or less) at their headquarters (HQ). Table 3.1 gives a summary of the background of the batik companies surveyed.

Table 3.1: Summary of background of batik companies.

| Variables | Categories | Frequency | % |
|------------------------------------|---------------------|------------------|----------|
| Type of business | Dealer and Producer | 7 | 64% |
| | Producer | 4 | 36% |
| Year established | 1971-1980 | 4 | 36% |
| | 1981-1990 | 2 | 18% |
| | 1991-2000 | 5 | 46% |
| Number of years in business | 10 years or less | 4 | 36% |
| | 11-20 | 2 | 18% |
| | 21-30 | 4 | 46% |
| Number of branches | None | 5 | 46% |
| | 1-2 | 2 | 18% |
| | 3-4 | 3 | 27% |
| | 5-6 | 1 | 9% |
| Number of employees in HQ | 1-10 | 7 | 64% |
| | 11-20 | 2 | 9% |
| | > 20 | 2 | 27% |

Survey results indicated that communication via telephone is still the major mode of communication with suppliers, producers and customers. 57% of the batik dealers and producers communicate with their suppliers via e-mail. It was also found that only 55% of the surveyed batik companies communicate with their customers via e-mail. Only 4 (36%) of the batik companies deal with foreign suppliers or producers. 45% of the batik companies order their supplies monthly. Payment by cheque (82%) is still the most favored mode of payment. Only 45% of batik companies provide online payment facilities.

86% of the batik dealers and producers have backend system. 82% of the batik companies provide after sales service while only 55% have call contact center. The companies that have call contact centers are Batek Malaysia Berhad, Noor Arfa Batek Sdn Bhd, Butik D'Charma, Syarikat Pemasaran Karyaneka Sdn Bhd, Pelangi Batek and Koleksi Melayu. Only four batik companies (36%) out of the 11 companies that participated in this study have set up their own websites. The companies are Batek Malaysia Berhad, Noor Arfa Batek Sdn Bhd, Jadi Batek Centre and Syarikat Pemasaran Karyaneka Sdn Bhd. All of the four batik companies maintain their own websites except for Batek Malaysia Berhad which outsource the maintenance of their website. Only 2 companies stated that they do get online orders. All four batik companies wish to improve their websites' capabilities. The services majority of the companies wish to add are shopping cart, online payment and

immediate credit card validation services. The main benefits they gain from their websites are faster and more efficient communication with customers while the two main problems they face are funding and lack of expertise in their company to maintain the website.

For the batik companies without websites, the traditional method of doing business is favored as they are use to it and it does not require a lot of expertise. Only four out of the seven batik companies surveyed which do not have websites have plans to build their own websites.

From interviews and survey results, the information flow between batik companies and relevant organizations are shown in Figure 3.1.

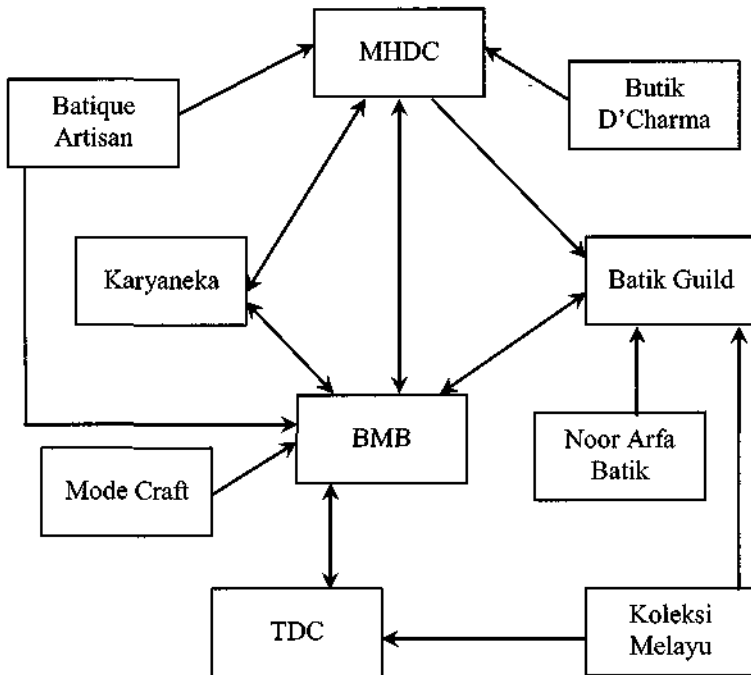


Figure 3.1: Information Flow between Companies and Organizations

All eleven companies surveyed are of the opinion that there is a need for open channels of communication between all players in the batik industry. Majority agreed that an online batik community portal can help provide an open channel of communication. One company stated their concern that with the existence of an online batik community portal, their designs might risk being stolen by others and the uniqueness of the raw material will decrease as other producers sell goods of the same design. Table 3.2 lists the reasons why some batik companies favor an online batik community portal.

Table 3.2: Frequency distribution of some reasons why an online batik community network portal can help provide an open channel of communication

| Online batik community portal provides: | Percentage of companies (N=10) |
|---|-----------------------------------|
| Centralized platform for interaction | 60% |
| Accessible links/channels to other websites | 90% |
| Faster means of communication | 70% |
| Easier means of communication | 70% |
| Information accessibility | 50% |

Table 3.2 indicated that majority agreed that an online batik community network portal will provide accessible links (or channels) to other websites and for faster and easier communication.

In this study, information was also obtained on the importance of Information Technology (IT) in the batik industry. Table 3.3 indicates that most of the batik companies rate IT as very important for their batik business. Most top management supports the use of IT and is committed to using IT to promote the batik business. Majority agree (as shown in Table 3.4) that IT has also helped the batik industry increase their client base, improved their sales, profitability, competitive position and recognition of their market brand.

Table 3.3: Percentage distribution for the rating of the importance of information technology for batik companies.

| Information Technology | Not Important | Somewhat Important | Very Important |
|-----------------------------------|---------------|--------------------|----------------|
| Intranet | 9% | 27% | 64% |
| Extranet | 18% | 18% | 64% |
| Online marketing | 9% | 27% | 64% |
| Electronic procurement | 18% | 27% | 55% |
| Electronic tendering | 18% | 18% | 64% |
| Electronic data interchange (EDI) | 18% | 18% | 64% |
| Computerized customers database | 18% | 18% | 64% |
| Call/contact centre | 27% | 9% | 64% |
| IT business operation | 9% | 36% | 55% |

Table 3.4: Percentage distribution for opinion on usage of IT and IT support in batik business.

| | Strongly Disagree (1) | Disagree (2) | Neutral (3) | Agree (4) | Strongly Agree (5) |
|---|-----------------------|--------------|-------------|-----------|--------------------|
| CEO/Management Commitment to IT | | | | | |
| My company is committed to using IT to promote business | | 9% | 36% | 45% | |
| Our top management support the use of IT | | 9% | 27% | 64% | |
| IT Support in Business | | | | | |
| New information technology has: | | | | | |
| i. dramatically improved our sales | | 18% | 27% | 46% | 9% |
| ii. dramatically improved our profitability | | 18% | 36% | 46% | |
| iii. improved our competitive position | | 9% | 36% | 55% | |
| iv. dramatically improved the recognition of our market brand | | 9% | 36% | 55% | |
| Overall Company Performance | | | | | |
| Over the past three years: | | | | | |
| i. our sales have been outstanding | | 27% | 27% | 46% | |
| ii. our financial performance have been outstanding | | 36% | 27% | 37% | |
| iii. we have been more profitable than our competitors | | 36% | 37% | 27% | |
| iv. our client base has incrementally increased | | 27% | 18% | 55% | |

Table 3.5 indicates that there is a highly strong significant correlation (Spearman's rho correlation coefficient=0.867, p-value < 0.01) between company commitment to using IT to promote business and CEO/top management support in using IT. This study found that improved sales, profitability, competitive position and recognition of market brand are significantly correlated with the batik company commitment to using IT in their business. However, they are not significantly related to CEO or top management support of the use of IT. As expected, outstanding financial performance are highly positively correlated with outstanding sales (Spearman rho's correlation coefficient=0.902, p-value <0.01) and being more profitable than their competitors (Spearman's rho correlation coefficient=0.804, p-value<0.01).

Table 3.5: Correlations between Information Technology and batik business performance

| | | commit | support | sales | profits | compete | recognition | outstanding sales | outstanding financial performance | competitors | client base |
|-----------------------------------|--------------------|--------|---------|--------|---------|---------|-------------|-------------------|-----------------------------------|-------------|-------------|
| Spearman's ρ commit | Correlation Coeff. | 1.000 | .867* | .717* | .619* | .714* | .714* | .273 | .472 | .418 | .000 |
| | Sig. (2-tailed) | | .001 | .013 | .042 | .014 | .014 | .417 | .142 | .200 | 1.000 |
| | N | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| support | Correlation Coeff. | .867* | 1.000 | .470 | .382 | .568 | .568 | .434 | .474 | .220 | .124 |
| | Sig. (2-tailed) | .001 | | .145 | .274 | .068 | .068 | .183 | .140 | .515 | .717 |
| | N | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| sales | Correlation Coeff. | .717* | .470 | 1.000 | .891** | .934** | .934** | .532 | .770** | .747** | .184 |
| | Sig. (2-tailed) | .013 | .145 | | .000 | .000 | .000 | .092 | .006 | .008 | .588 |
| | N | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| profits | Correlation Coeff. | .619* | .382 | .891** | 1.000 | .868** | .868** | .362 | .800 | .662* | .146 |
| | Sig. (2-tailed) | .042 | .274 | .000 | | .001 | .001 | .274 | .051 | .028 | .668 |
| | N | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| compete | Correlation Coeff. | .714* | .568 | .934** | .868** | 1.000 | 1.000** | .655* | .850** | .823** | .368 |
| | Sig. (2-tailed) | .014 | .068 | .000 | .001 | | | .029 | .001 | .002 | .268 |
| | N | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| recognition | Correlation Coeff. | .714* | .568 | .934** | .868** | 1.000** | 1.000 | .855* | .850** | .823** | .366 |
| | Sig. (2-tailed) | .014 | .068 | .000 | .001 | | | .029 | .001 | .002 | .268 |
| | N | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| outstanding sales | Correlation Coeff. | .273 | .434 | .532 | .362 | .655* | .855* | 1.000 | .902** | .572 | .543 |
| | Sig. (2-tailed) | .417 | .183 | .092 | .274 | .029 | .029 | | .000 | .066 | .084 |
| | N | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| outstanding financial performance | Correlation Coeff. | .472 | .474 | .770** | .800 | .850** | .850** | .902** | 1.000 | .804** | .484 |
| | Sig. (2-tailed) | .142 | .140 | .008 | .051 | .001 | .001 | .000 | | .003 | .131 |
| | N | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| competitors | Correlation Coeff. | .418 | .220 | .747** | .662* | .823** | .823** | .572 | .804** | 1.000 | .578 |
| | Sig. (2-tailed) | .200 | .515 | .008 | .028 | .002 | .002 | .066 | .003 | | .063 |
| | N | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |
| client base | Correlation Coeff. | .000 | .124 | .184 | .146 | .366 | .366 | .543 | .484 | .578 | 1.000 |
| | Sig. (2-tailed) | 1.000 | .717 | .588 | .668 | .268 | .268 | .084 | .131 | .063 | |
| | N | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 | 11 |

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Factor analysis was used to identify the underlying components of the 8 items in Section H of the questionnaire pertaining to the usage of IT in the batik business. Items that are highly correlated with each other will form a factor. The results of factor analysis via principal component method and rotating via varimax are as shown in Table 3.6. The Kaiser-Meyer-Olkin measure of Sampling Adequacy is greater than 0.6 and the Bartlett's test of sphericity is significant (p -value<0.05) indicating that factorability is assumed (Coakes et al., 2006).

Table 3.6: Factor Loadings via Varimax Rotation

| Rotated Component Matrix | | | |
|---|-----------------|-----------------|-----------------|
| | Factor 1 | Factor 2 | Factor 3 |
| (1) My company is committed to using IT to promote business | .478 | .107 | .857 |
| (2) Our top management support the use of IT | .134 | .268 | .947 |
| (3) It has dramatically improved our sales | .840 | .305 | .357 |
| (4) IT has dramatically improved our profitability | .909 | .137 | .298 |
| (5) IT has improved our competitive position | .697 | .497 | .487 |
| (6) Our sales have been outstanding | .127 | .937 | .244 |
| (7) Our financial performance has been outstanding | .436 | .858 | .212 |
| (8) We are more profitable than our competitors | .706 | .595 | -.015 |

The factors were identified via factor loadings above 0.7. Table 3.7 summarizes the items in each factor and the reliability measures. The three factors are labeled as perceived Commitment to IT, IT Support in Business and Company Performance.

Table 3.7: Summary of items and reliability measures for each factor

| Factors | Items | Rotated Factor Loadings | Cronbach Alpha coefficient of reliability |
|--|--|--------------------------------|--|
| CEO/Management commitment to IT | (1) My company is committed to using IT to promote business | 0.857 | 0.949 |
| | (2) Our top management support the use of IT | 0.947 | |
| IT Support in business | (1) New IT has dramatically improved our sales | 0.840 | 0.935 |
| | (2) New IT has dramatically improved our profitability. | 0.909 | |
| | (3) New IT has dramatically improved our competitive position. | 0.697 | |
| | (4) Over the past three years, we have been more profitable than our competitors | 0.706 | |
| Company performance | (1) Over the past three years, our sales have been outstanding. | 0.937 | 0.945 |
| | (2) Over the past three years, our financial performance has been outstanding. | 0.858 | |

Cluster analysis was then carried out using the factor scores for each of the three factors. The following tables (Tables 3.7(a), 3.7(b), and 3.7(c)) show the clusters based on Factor 1 (commitment to using IT) scores, Factor 2 (IT support in business) and Factor 3 (overall company performance). Figure 3.2 shows the clusters based on commitment to using IT and IT support in business. Generally, it can be concluded that batik companies with high commitment towards using IT found that IT greatly supports their performance in business.

Table 3.7(a): Clusters identified based on IT commitment factor scores

| Batik Companies | Cluster |
|---|-------------------------------|
| Company A Company D Company E Company H Company I Company J Company K | 1 (High IT commitment) |
| Company B Company F Company G | 2 (Moderate IT commitment) |
| Company C | 3 (Low IT commitment) |

Table 3.7(b): Clusters identified based on IT support in business factor scores

| Name of Batik Companies | Cluster |
|--|----------------------------|
| Company A Company E Company F Company H Company I Company J | 1 (High IT Support) |
| Company B Company D Company G | 2 (Moderate IT Support) |
| Company C Company K | 3 (Low IT Support) |

Table 3.7(c): Clusters Identified based on overall company performance factor scores

| Name of Batik Companies | Cluster |
|---|---------------------------------------|
| Company A Company F Company H Company J Company K | 1 (High financial performance) |
| Company I Company B Company E | 2 (Moderate financial performance) |
| Company C Company G Company D | 3 (Low financial performance) |

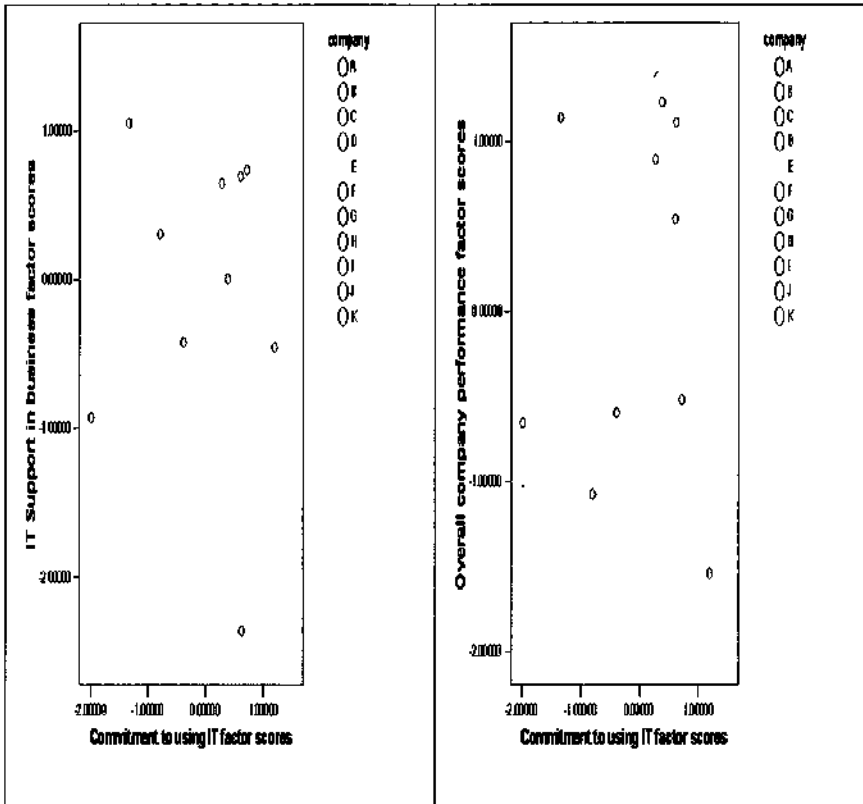


Figure 3.2: IT support in business versus company commitment to using IT

4. Conclusion

Although there have been efforts by the government to encourage Malaysian industries to deploy IT to gain competitive advantage and to face the challenges of globalization, IT does not seem to be widely deployed in the Malaysian batik industry. Traditional methods such as communication via telephone and payment by cheques are still favored over communication via e-mail and providing online payment services. Majority of batik companies acknowledged that they can gain faster and more efficient communication with customers via their websites. However, most companies still lack funds and expertise to maintain their websites. As a result of this, traditional method of doing business is still preferred. Most batik companies aware that online batik community network portal will help provide accessible links (or channels) to other websites and for faster and easier communication. However, there was also some concern expressed that the community network portal might cause batik company designs to be easily 'stolen' (or copied) by others and that the uniqueness of the design will decrease when producers sell goods of the same design. Most batik companies found that their commitment towards using IT in their businesses help improve sales, profitability, competitive position and recognition of

their market products. Work is being done to utilize the results of this study to guide in building a reference community net portal model that can eventually lead to the development of an actual working portal which could help 'bring about some improvements in pushing the local batik industry to the global forefront.

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